

IN THE CLAIMS:

Please cancel Claims 12-29 without prejudice or disclaimer of subject matter.

Please amend Claims 1, 6, and 8-11, and add Claims 30-48, to read as follows.

Sub B.1

1. (Currently Amended) In a A wavelength ~~Division~~ division multiplexed optical system, ~~the combination~~ comprising:

a first optical node including a transponder having a test signal generator for generating a test signal, ~~and a monitoring circuit for monitoring a received test signal;~~

a second optical node including a transponder having ~~a test signal generator for generating a test signal, and a monitoring circuit for monitoring a received test signal; and~~

a light path interconnecting through which at least optical communications normally are exchanged between said first and second optical nodes,

wherein said light path is tested by the monitoring circuit ~~of the transponder of said second optical node by monitoring a quality of the test pattern generated by the test signal generator of the transponder of said first optical node~~ signal in response to receiving the test signal from the first optical node through said light path.

2. (Original) The optical system of Claim 1, wherein the quality monitored is a bit error rate.

3. (Original) The optical system of Claim 1, wherein the test signal is a valid client signal.

4. (Original) The optical system of Claim 3, wherein the valid client signal is one of a valid SONET frame, an ATM cell and an IP packet.

5. (Original) The optical system of Claim 1, wherein the test signal is a valid maintenance signal.

6. (Currently Amended) The optical system of Claim 5, wherein the valid maintenance signal is a SONET alarm indication signal.

7. (Original) The optical system of Claim 1, wherein said light path is tested prior to connecting client equipment to said first and second optical nodes.

AG
copy

8. (Currently Amended) The optical system of Claim 1, wherein the test signal ~~generated by the test signal generator of the transponder of said first optical node includes predetermined errors, and the monitoring circuit of the transponder of said second optical node monitors the received test signal.~~

9. (Currently Amended) The optical system of Claim 1, ~~including a further~~ comprising client equipment connected to said first optical node, said client equipment ~~transmitting/receiving signals to/from~~ normally exchanging optical communications with said first optical node, wherein said first optical node further includes ~~blocking means for blocking transmitting/receiving signals to/from~~ a communications blocker which blocks the optical

communications from being normally exchanged with said client equipment when the test signal generator of the transponder of said first optical node generates a the test signal.

10. (Currently Amended) An optical line terminal comprising:

a transponder having at least a transmitter and a receiver, ~~with a test signal generator connected to the transmitter for generating a test signal for the transmitter to transmit at an output thereof,~~ and a monitoring circuit connected to the receiver for monitoring a received test signal at an input of the receiver, wherein the transmitter transmits signals applied to an input of the transmitter from the optical line terminal; and

part
a switch, operable means for connecting the either coupling a signal output of by the transmitter to the input of the receiver to test a quality of the input of the transmitter, or coupling the test signal transmitted by to the input of the transmitter and received by the receiver.

11. (Currently Amended) A wavelength division multiplexed optical system, comprising:

an optical node including a transponder having a test signal generator for generating a test signal;

a client equipment including a monitoring circuit for monitoring a received test signal; and

an optical ~~interface connecting~~ path through which at least optical communications normally are exchanged between said optical node and said client equipment,

wherein said optical ~~interface~~ path is tested by monitoring a quality of the test signal generated by the test signal generator of said optical node and received by the monitoring circuit of said client equipment through said optical path.

12-29. (Canceled)

30. (New) The optical system of Claim 1, wherein the transponder of said first optical node also has another monitoring circuit for monitoring a test signal received thereby, the transponder of said second optical node also has another test signal generator for generating another test signal, and the monitoring circuit of said first optical node tests the light path by monitoring a quality of the test signal generated in said second optical node and provided to the monitoring circuit of said first optical node through said light path.

31. (New) The optical system of Claim 30, wherein the light path includes at least one loopback mechanism which directs the test signal generated by the test signal generator of one of said first and second optical nodes to the monitoring circuit of a same one of said first and second optical nodes, for monitoring therein.

32. (New) The optical system of Claim 31, wherein the light path also includes at least one other optical node, and the loopback mechanism is included in the at least one other optical node.

33. (New) In a wavelength division multiplexed optical communication system having an optical path through which optical communications normally are communicated, at least one optical node comprising:

a transmitting portion, arranged to transmit a generated test signal through the optical path, the test signal being an optical signal; and

a receiving portion, arranged to receive the test signal from the transmitting portion through the optical path, and to monitor a quality of the test signal received through the optical path, without requiring a conversion of the test signal to or from a non-optical form.

34. (New) The at least one optical node of Claim 33, wherein the optical path includes at least one loopback mechanism which directs the generated test signal transmitted by said transmitting portion towards said receiving portion.

35. (New) The at least one optical node of Claim 34, wherein the optical path also includes at least one other optical node, and the loopback mechanism is included in the at least one other optical node.

36. (New) The at least one optical node of Claim 35, wherein the at least one other optical node includes an add-drop multiplexer.

37. (New) A method for operating a wavelength division multiplexed optical communication system, comprising:

transmitting a generated test signal from a first optical node to a second optical node by way of a light path through which at least optical communications normally are exchanged between the first and second optical nodes; and

determining if there is a fault condition in the light path based on a quality of the test signal received at the second optical node.

38. (New) The method of Claim 37, wherein the quality is represented by a bit error rate.

39. (New) The method of Claim 37, wherein the test signal is a valid client signal.

40. (New) The method of Claim 39, wherein the valid client signal is one of a valid SONET frame, an ATM cell and an IP packet.

41. (New) The method of Claim 37, wherein the test signal is a valid maintenance signal.

42. (New) The method of Claim 41, wherein the valid maintenance signal is a SONET alarm indication signal.

43. (New) The method of Claim 37, wherein the light path is tested prior to

connecting client equipment to the first and second optical nodes.

44. (New) The method of Claim 37, wherein the test signal includes predetermined errors.

45. (New) A method for operating a wavelength division multiplexed optical communication system having at least one optical node coupled in at least one optical path through which optical communications normally are communicated, the method comprising:

transmitting a generated test signal from the at least one optical node through the at least one optical path, the test signal being an optical signal;

receiving back at the at least one optical node the test signal transmitted from the at least one optical node through the at least one optical path; and

monitoring a quality of the test signal received at the at least one optical node, without requiring a conversion of the test signal to or from a non-optical form.

46. (New) The method of Claim 45, further comprising looping back the test signal transmitted from the at least one optical node, towards the at least one optical node through the at least one optical path.

Sub B1 > 47. (New) The method of Claim 46, wherein the optical path also includes at least one other optical node, and the looping back is performed in the at least one other optical node.

48. (New) The method of Claim 47, wherein the at least one other optical

node includes an add-drop multiplexer.